

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended) A heat exchange catheter comprising:

a longitudinal catheter shaft having ~~with~~ a proximal end, ~~and~~ a distal end, an inflow lumen and an outflow lumen;

a heat exchange region comprising a plurality of heat exchange elements, ~~each of~~ said heat exchange elements comprising looped tubular members having first ends connected to the inflow lumen and second ends connected to the outflow lumen such that heat exchange fluid may be infused in a distal direction through the inflow lumen, through the looped tubular members and then in a proximal direction through the outflow lumen, substantial portions of said looped tubular members being unattached to the catheter shaft. ~~having a length and opposed ends and each of said heat exchange elements being disposed such that, when the heat exchange region of the catheter is positioned in a body lumen or body cavity that contains body fluid, the body fluid may circumferentially surround at least a portion of each heat exchange element.~~

Claim 2 (Currently amended) The catheter of claim 1, wherein at least some of the heat exchange elements comprise hollow fibers ~~have a fluid flow path therethrough.~~

Claim 3 (Original) The catheter of claim 2, wherein at least some of the heat exchange elements have a non-circular cross-section.

Claim 4 (Currently amended) The catheter of claim 2, wherein at least some of the heat exchange elements comprise single lumen tubes ~~the shaft has a fluid inflow lumen and a fluid outflow lumen and a circulation pathway therebetween for the circulation of heat exchange medium, at least some of the heat exchange elements being in the circulation pathway to enable circulation of a fluid heat exchange medium through the heat exchange elements.~~

Claim 5 (Currently amended) The catheter of claim 4, wherein the first and second ends of the looped tubular members are attached to the catheter shaft and the remainders of the looped tubular members float freely when the catheter is in use ~~each heat exchange element has an inflow orifice on one end and an outflow orifice on the opposed end, the inflow orifice and the outflow orifice being in communication with the circulation pathway.~~

Claim 6 (Currently amended) The catheter of claim 1 ~~[[5]]~~, wherein each heat exchange element comprises a hollow filament ~~extends in a non-linear path from its inflow orifice to its outflow orifice, the non-linear path having a least one point of inflection.~~

Claim 7 (Currently amended) The catheter of claim 1 ~~[[5]]~~, wherein the catheter includes an inlet manifold that receives heat exchange fluid from the inflow lumen, the first ends of the looped tubular members being connected to the inflow manifold such that heat exchange fluid flows from the inflow manifold into the looped tubular members and open to the inflow lumen and to the inflow orifice of each heat exchange element, and the catheter includes an outlet manifold connected to the outflow lumen and the second ends of the looped tubular members such that heat exchange fluid flows out of the second ends of the looped tubular members, through the outflow manifold and into the open to the outflow lumen and to the outflow orifice of each heat exchange element.

Claim 8 (Cancelled)

Claim 9 (Currently amended) The catheter of claim 7, wherein the looped tubular members ~~heat exchange elements~~ comprise elongate hollow filaments having opposed open first and second ends defining the respective inflow and outflow orifices, and wherein the inflow orifices communicate with the inflow manifold and the outflow orifices communicate with the outflow manifold ~~each filament open end communicates with an interior space in a respective manifold.~~

Claim 10 (Currently amended) The catheter of claim 1 ~~[[7]]~~ wherein the looped tubular members extend from the distal end of the catheter shaft ~~heat-exchange elements are longer than the distance between the inlet and outlet manifold.~~

Claim 11 (Currently amended) The catheter of claim 1, ~~wherein the~~ further comprising a tubular sleeve that may be advanced over the looped tubular members thereby constraining the looped tubular members ~~shaft has a length and the heat-exchange region extends a distance that is less than one half the length of the shaft.~~

Claim 12 (Currently amended) The catheter of claim 1 further comprising a guidewire lumen extending longitudinally through the catheter shaft ~~11, wherein the heat-exchange region is located on the distal region of the shaft.~~

Claim 13 (Original) The catheter of claim 11, further including an insulating region on the shaft located proximally with respect to the heat exchange region.

Claim 14 (Original) The catheter of claim 13, wherein the insulating region extends the entire length of the shaft proximal of the heat exchange region.

Claim 15 (Original) The catheter of claim 13, wherein the insulating region extends approximately 85-90% of the length of the shaft, and a heat exchange region extends substantially along the rest of the shaft.

Claim 16 (Original) The catheter of claim 1, further including an insulating region on the shaft located proximally with respect to the heat exchange region, and wherein the insulating region comprises an inflatable balloon surrounding the shaft.

Claim 17 (Original) The catheter of claim 16, wherein the shaft is within the balloon and the insulating region comprises a plurality of stand-offs interposed between and spacing apart the inner wall of the balloon and the shaft.

Claim 18 (Original) The catheter of claim 16, wherein the insulating region comprises a plurality of the balloons surrounding the shaft and a sleeve encompassing the balloons.

Claim 19 (Currently amended) A system comprising a ~~The catheter according to of claim 1~~ in combination with a guidewire sized to pass through the guidewire lumen, wherein there are at least three heat exchange elements.

Claim 20 (Currently amended) The system ~~catheter~~ of claim 19 wherein the looped tubular members are temporarily attached to the guidewire, wherein the heat exchange elements are evenly circumferentially distributed about the shaft.

Claims 21 – 38 (Cancelled)

Claim 39 (New) The system of claim 20 wherein the temporary attachment between the looped tubular members and the guidewire is overcome when the looped tubular members become filled with heat exchange fluid.

REMARKS/ARGUMENTS

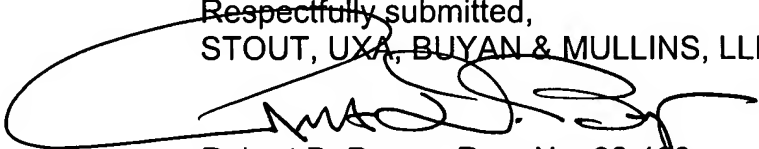
The foregoing amendment and the remarks which follow are responsive to the office action dated March 16, 2005. In that office action, 1-15, 19, 20 and 36-39 were rejected over Gobin et al. and claims 16-18 and 21-35 were merely objected to as being dependent upon a rejected claim.

By the present amendment, applicant has amended the claims to recite a heat exchange catheter device having looped tubular members through which heat exchange fluid circulates. A non-limiting examples of such embodiments are shown in Figures 15-24 and described in the corresponding portions of the specification. No new matter has been added by way of the present amendment.

All claims, as currently amended, are believed to be allowable over Gobin et al. and all other prior art of record. Issuance of a notice of allowance is earnestly solicited.

Respectfully submitted,
STOUT, UXA, BUYAN & MULLINS, LLP

Date: September 16, 2005



Robert D. Buyan, Reg. No. 32,460

4 Venture, Suite 300
Irvine, California 92618
voice: 949/450-1750
fax: 949/450-1764